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(51) International Patent Classification ⁷ : A23L 1/025, 1/36	A1	(11) International Publication Number: WO 00/60954 (43) International Publication Date: 19 October 2000 (19.10.00)
(21) International Application Number: PCT/US00/09749 (22) International Filing Date: 12 April 2000 (12.04.00) (30) Priority Data: 09/289,906 13 April 1999 (13.04.99) US (71) Applicant: BUSH BOAKE ALLEN INC. [US/US]; 7 Mercedes Drive, Montvale, NJ 07645 (US). (72) Inventor: SHEU, Shan-Shan; 47 Long Ridge Road, Randolph, NJ 07869 (US). (74) Agent: MUCCINO, Richard, R.; 758 Springfield Avenue, Summit, NJ 07901 (US).		(81) Designated States: BR, CA, CN, IN, JP, KR, MX, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>
(54) Title: MICROWAVABLE COMPOSITIONS FOR PREPARING GLAZED SNACK FOODS		
(57) Abstract <p>This invention pertains to microwavabe popcorn compositions useful for preparing popcorn with a glaze coating. The popcorn compositions comprise, in percentages by weight of the total mixture, (a) unpopped popcorn in an amount from about 20% to about 60%; and (b) a glaze coating premixture comprising (i) a hard candy base in an amount from about 40% to 80%; (ii) an emulsifying agent in an amount up to about 4%; and (iii) water in an amount from about 0.1% to about 5%. The glaze coating premixture is heated to form an amorphous premixture. The present invention also provides methods for preparing these microwavable popcorn compositions and for microwavable popcorn compositions prepared by the novel method.</p>		

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MICROWAVABLE COMPOSITIONS FOR PREPARING GLAZED SNACK FOODS

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BACKGROUND OF THE INVENTION

1. Field of the Invention

25 This invention pertains to microwavable snack food compositions useful for preparing snack foods, such as popcorn, with a glaze coating. The present invention also provides methods for preparing these microwavable snack food compositions and for microwavable snack food compositions prepared by the novel method.

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2. Description of the Background

35 Microwaveable popcorn (microwave popcorn) is a very popular, fast-growing, consumer food product. Microwaveable popcorn generally comprises unpopped popcorn and an oil or fat, to facilitate the popping process, enclosed within a microwaveable, disposable paper or fiberboard container. The oil or fat functions as a heat sink to retain heat in the microwaveable container to pop the popcorn. The container is placed inside a microwave oven for about 1-5 minutes

until about 95% of the unpopped popcorn is converted to its popped form and is ready for consumption.

5 Many microwavable popcorn products contain a flavored coating which consists generally of oils blended with flavoring and/or spice agents, such as butter and salt. A problem in the field of microwavable popcorn products is that there are no commercially acceptable microwavable popcorn products containing a sugar-based glaze or coating. Commercially available popcorn products containing a sugar-based glaze are not available as one-step microwavable products but rather
10 are multi-step products prepared by first popping the popcorn and subsequently pouring the separately prepared (melted) glaze or syrup over the popcorn while mixing or tumbling the popcorn. The reason for the lack of an acceptable sugar-based glazed microwavable popcorn product is that the temperatures at which sugars tend to caramelize (polymerize and darken) are at or below the temperatures
15 at which popcorn pops. When a sugar-based glazed popcorn product is prepared by conventional microwave means, the sugar-glaze tends to caramelize by the time the popcorn has popped leading to a product having a burnt flavor, odor, and appearance, which is unacceptable to the consumer.

20 United States patent no. 4,596,713 (*Burdette*) discloses a microwavable package for heating a food product comprising an interior cavity, a food product within the cavity, and a flexible pouch-like packet, containing a food additive, secured within the cavity overlying the food product. The packet has a means for automatically rupturing and dispersing the additive over the food
25 product. United States patent no. 4,751,090 (*Belleson et al.*) discloses a microwavable composition usable in preparing a microwavable popcorn product with a sugar based glaze comprising unpopped popcorn, a glazing blend comprising an oil-in-water emulsion, a sugar component, a water component, and a lecithin component. United States patent no. 4,927,645 (*Lee*) discloses a candy bar which
30 displays uniform melting characteristics in a microwave oven and forms a pourable, composition useful as a coating. United States patent no. 5,443,858 (*Jensen et al.*) discloses a microwavable mixture usable in preparing microwavable popcorn product with a sugar based flavoring comprising unpopped popcorn and a sweetening blend mixed with the unpopped popcorn comprising an oil component
35 having a melting point of at least 115°F., and a crystalline sugar component having a moisture content of no greater than about 2% by weight. A glazing blend is also mixed with the unpopped popcorn comprising a mixture of corn syrup and an oil having a melting point of at least 115°F.

While the above disclosures provide methods for preparing microwavable popcorn compositions, none of the above disclosures teach a satisfactory microwavable popcorn composition useful for preparing popcorn with a glaze coating which can be prepared in a one-step method. The present invention provides such microwavable popcorn compositions useful for preparing popcorn with a glaze coating without the disadvantages which are characteristic of previously known products. The present invention also provides methods for preparing these microwavable popcorn compositions and for microwavable popcorn compositions prepared by the novel method.

SUMMARY OF THE INVENTION

The present invention is directed at a microwavable popcorn composition useful for preparing popcorn with a glaze coating which comprises in percentages by weight of the total mixture:

- (a) unpopped popcorn in an amount from about 20% to about 60%; and
- (b) a glaze coating premixture comprising:

- (i) a hard candy base in an amount from about 40% to about 80%;
- (ii) an emulsifying agent in an amount up to about 4%; and
- (iii) water in an amount from about 0.1% to about 5%; wherein the glaze coating premixture is heated to form an amorphous premixture.

The present invention is also directed at a method for making a microwavable popcorn composition useful for preparing popcorn with a glaze coating which comprises the steps of:

- (a) admixing the following ingredients:

- (i) a hard candy base in an amount from about 40% to about 80%;
- (ii) an emulsifying agent in an amount up to about 4%; and
- (iii) water in an amount from about 0.1% to about 5%;

(b) heating the admixture from step (a) to form an amorphous glaze coating premixture; and

(c) providing unpopped popcorn in an amount from about 20% to about 60%;
wherein all percentages are by weight of the total mixture.

The present invention is further directed at a method for making a microwavable snack food composition useful for preparing a snack food with a glaze coating which comprises the steps of:

- (a) admixing the following ingredients:
- (i) a hard candy base in an amount from about 40% to about 80%;
 - (ii) an emulsifying agent in an amount up to about 4%; and
 - (iii) water in an amount from about 0.1% to about 5%;
- (b) heating the admixture from step (a) to form an amorphous glaze coating premixture; and
- (c) providing a snack food in an amount from about 20% to about 60%;
- wherein all percentages are by weight of the total mixture.

DETAILED DESCRIPTION OF THE INVENTION

The present invention is directed at popcorn compositions useful for preparing popcorn with a glaze coating in a one-step microwavable method which combines both popping and glazing. Conventional one-step microwavable methods for preparing popcorn with a glaze coating tend to be unsuccessful because the sugar-glaze coating caramelizes and burns by the time the popcorn has popped leading to a product having an unacceptable flavor. Applicant has found that by heating a glaze coating premixture to form an amorphous premixture (110°C. to about 170°C.), one can obtain a glaze coating that melts more easily during the microwave popping process thus minimizing burning and sticking. In the method of the present invention, the amorphous glaze coating premixture is placed in close contact with unpopped corn kernels either as a separate phase above the kernels or as an intimate mixture with the kernels. The corn kernels and amorphous glaze coating premixture are then heated in a microwave oven, where the glaze coating premixture melts and coats the kernels as they are popping. When the microwave heating cycle is complete, the kernels are shaken and cooled to form a popcorn product having a solidified thin coating on the surface of the kernels. The glaze coating premixture may comprise sugars, or may be sugarless, and may be high-fat, low-fat, fat-free, and regular, reduced, or low-calories. The glaze coating premixture may further contain flavors, colors, and agents providing visual effects such as colored beads, and the like. The present invention also provides methods for preparing and using these microwavable popcorn compositions and the formulations in which they may be employed.

The terms "ingestible" and "edible", as used herein, refer to all materials and compositions which can be safely taken into the body whether or not they perform a function in the body. These materials and compositions include those which are adsorbed, and those which are not absorbed as well as those which are digestible and non-digestible.

In accord with the present invention, the microwavable popcorn composition useful for preparing popcorn with a glaze coating comprises in percentages by weight of the total mixture:

- (a) unpopped popcorn in an amount from about 20% to about 60%; and
- (b) a glaze coating premixture comprising:
 - (i) a hard candy base in an amount from about 40% to about 80%;
 - (ii) an emulsifying agent in an amount up to about 4%; and
 - (iii) water in an amount from about 0.1% to about 5%; wherein the glaze coating premixture is heated to form an amorphous mixture.

The unpopped popcorn that will work in the present invention, in general, is all popcorn normally used for this purpose. Some types and sizes of popcorn, however, will give better results than others. A preferred popcorn is "mushroom" popcorn which has a kernel size of about 55-65 kernels per 10 grams of popcorn. In general, the popping temperature for popcorn is about 350°F. (176°C.). Thus, for microwave popcorn to pop, sufficient microwave energy must be absorbed for the popcorn to be heated to approximately this extent. The unpopped popcorn in the present invention is present in the microwavable popcorn composition in an amount from about 20% to about 60%, preferably in an amount from about 25% to about 50%, and more preferably in an amount from about 25% to about 30%, by weight.

As set out above, the amorphous glaze coating premixture comprises a hard candy base, an emulsifying agent, and water. The hard candy base in the present invention is a base normally employed in a hard confectionery and is generally composed of a mixture of sugar and other carbohydrate bulking agents kept in an amorphous or glassy condition. This form is considered a solid syrup of sugars generally having from about 0.5% to about 2.5% moisture. Such materials normally contain up to about 92% sugar, up to about 55% corn syrup and from about 0.1% to about 5% water, by weight of the final composition. The syrup component is generally prepared from sucrose and corn syrups, but may include other materials. The hard candy base may comprise sugars, or may be sugarless, and may be high-fat, low-fat, fat-free, and regular, reduced, or low-calories. The

hard candy base is preferably selected from the group consisting of corn syrup, sucrose, isomalt, polydextrose, sorbitol, maltose, xylitol, mannitol, and lactisole (Cypha, Envision). A preferred hard candy base comprises corn syrup in an amount from about 30% to about 60% and sucrose in an amount from about 40% to about 70%. Starch or corn syrup solids may also be added to the candy to increase its viscosity and form clusters.

The amount of the hard candy base in the microwavable popcorn composition useful for preparing popcorn with a glaze coating is an amount effective to glaze the popcorn. The exact amount of hard candy base may vary depending upon the type of hard candy base employed and the level of sweetness desired. In general, the amount of hard candy base present is the ordinary amount required to obtain the desired result. In a preferred embodiment, the hard candy base in the microwavable popcorn composition is present in an amount from about 40% to about 80%, preferably from about 50% to about 75%, and more preferably from about 60% to about 70%, by weight.

The emulsifying agent in the present invention may be selected from a wide variety of emulsifying agents which will minimize burning and sticking of the glaze coating. Suitable emulsifying agents include monoglyceride, diglyceride and triglyceride esters of fatty acids, polyglycerol esters, and the like, and mixtures thereof. More particularly, the emulsifying agent may be selected from the group consisting of lecithin, stearates, stearate esters, palmitates, palmitate esters, oleates, oleate esters, monoglycerides, diglycerides, and sucrose polyesters, polyglycerolesters, and mixtures thereof. More preferably, the emulsifying agent is lecithin. In a preferred embodiment, the emulsifying agent in the microwavable popcorn composition is present in an amount up to about 4%, preferably from about 0.1% to about 1%, and more preferably from about 0.2% to about 0.5%, by weight.

Sufficient water is included in the glaze coating premixture to convert it into an amorphous form. In a preferred embodiment, the water in the microwavable popcorn composition is present in an amount from about 0.1% to about 5%, preferably from about 0.5% to about 4%, and more preferably from about 1% to about 3%, by weight.

Optional ingredients that may be employed in the hard candy base include flavoring agents, coloring agents, and agents providing visual effects such as colored beads, and the like.

The coloring agents (colors, colorants) useful in the microwavable popcorn compositions are used in amounts effective to produce the desired color. These coloring agents include pigments which may be incorporated in amounts up to about 6% by weight of the microwavable popcorn composition. A preferred pigment, titanium dioxide, may be incorporated in amounts up to about 2%, and preferably less than about 1%, by weight of the non-oral topical therapeutic composition. The coloring agents may also include natural food colors and dyes suitable for food, drug and cosmetic applications. These coloring agents are known as F.D. & C. dyes and lakes. The materials acceptable for the foregoing uses are preferably water-soluble. Illustrative nonlimiting examples include the indigoid dye known as F.D. & C. Blue No.2, which is the disodium salt of 5,5-indigotindisulfonic acid. Similarly, the dye known as F.D. & C. Green No.1 comprises a triphenylmethane dye and is the monosodium salt of 4-[4-(N-ethyl-p-sulfoniumbenzylamino) diphenylmethylene]-[1-(N-ethyl-N-p-sulfoniumbenzyl)-delta-2,5-cyclohexadieneimine]. A full recitation of all F.D. & C. coloring agents and their corresponding chemical structures may be found in the Kirk-Othmer Encyclopedia of Chemical Technology, 3rd Edition, in volume 5 at pages 857-884, which text is incorporated herein by reference.

The flavoring agents which may be used include those flavors known to the skilled artisan, such as natural and artificial flavors. These flavorings may be chosen from synthetic flavor oils and flavoring aromatics and/or oils, oleoresins and extracts derived from plants, leaves, flowers, fruits, and so forth, and combinations thereof. Useful flavorings are artificial, natural and synthetic fruit flavors such as vanilla, and citrus oils including lemon, orange, lime, grapefruit, and fruit essences including apple, pear, peach, grape, strawberry, raspberry, cherry, plum, pineapple, apricot and so forth. These flavoring agents may be used in liquid or solid form and may be used individually or in admixture. Commonly used flavors include mints such as peppermint, menthol, artificial vanilla, cinnamon derivatives, and various fruit flavors, whether employed individually or in admixture. Examples of aldehyde flavorings include but are not limited to acetaldehyde (apple), benzaldehyde (cherry, almond), anisic aldehyde (licorice, anise), cinnamic aldehyde (cinnamon), citral, i.e., alpha-citral (lemon, lime), neral, i.e., beta-citral (lemon, lime), decanal (orange, lemon), ethyl vanillin (vanilla, cream), heliotrope, i.e., piperonal (vanilla, cream), vanillin (vanilla, cream), alpha-amyl cinnamaldehyde (spicy fruity flavors), butyraldehyde (butter, cheese), valeraldehyde (butter, cheese), citronellal (modifies, many types), decanal (citrus fruits), aldehyde C-8 (citrus fruits), aldehyde C-9 (citrus fruits), aldehyde C-12 (citrus fruits), 2-ethyl

butyraldehyde (berry fruits), hexenal, i.e., trans-2 (berry fruits), tolyl aldehyde (cherry, almond), veratraldehyde (vanilla), 2,6-dimethyl-5-heptenal, i.e., melonal (melon), 2,6-dimethyloctanal (green fruit), and 2-dodecenal (citrus, mandarin), cherry, grape, strawberry shortcake, mixtures thereof and the like. Preferred
5 flavoring agents include butter, brown sugar, caramel, cooked milk, maple, vanilla, cream, pastry, marshmallow, cheese, cinnamon, and honey.

As set out above, the glaze coating premixture, comprising a hard
candy base, an emulsifying agent, and water is heated to form an amorphous
10 premixture. Such hard candy bases may be converted into an amorphous form by
conventional confectionery methods such as those involving fire cookers, vacuum
cookers, and scraped-surface cookers also referred to as high speed atmospheric
cookers. Fire cookers involve the traditional method of making a candy base. In
this method, the desired quantity of carbohydrate bulking agent is dissolved in
15 water by heating the agent in a kettle until the bulking agent dissolves. Additional
bulking agent may then be added and cooking continued until a final temperature of
140°C. to 156°C. is achieved. The batch is then cooled and worked as a plastic-
like mass to incorporate additives such as flavoring agents, colorants and the like.
A high-speed atmospheric cooker uses a heat-exchanger surface which involves
20 spreading a film of candy on a heat exchange surface, the candy is heated to 165°C.
to 170°C. in a few seconds. The confectionery is then rapidly cooled to 100°C. to
120°C. and worked as a plastic-like mass enabling incorporation of the additives,
such as flavoring agents, colorants and the like. In vacuum cookers, the
carbohydrate bulking agent is boiled to 125°C. to 132°C., vacuum is applied and
25 additional water is boiled off without extra heating. When cooking is complete, the
mass is a semi-solid and has a plastic-like consistency. At this point, flavoring
agents, colorants, and other additives are admixed in the mass by routine
mechanical mixing operations. The optimum mixing required to uniformly mix the
flavoring agent, colorants and other additives during conventional manufacturing of
hard confectionery is determined by the time needed to obtain a uniform
distribution of the materials. Normally, mixing times of from 2 to 10 minutes have
been found to be acceptable. Once the candy base mass has been properly
tempered, it may be cut into workable portions or formed into desired shapes. A
variety of forming techniques may be utilized depending upon the shape and size of
30 the final product desired. A general discussion of the composition and preparation
of hard confections may be found in H.A. Lieberman, Pharmaceutical Dosage
Forms: Tablets, Volume 1 (1989), 3rd edition, Marcel Dekker, Inc., New York,
N.Y. at pages 419 to 582, which disclosure is incorporated herein by reference.
The apparatus useful in accordance with the present invention comprises cooking
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and mixing apparatus well known in the confectionery manufacturing arts, and therefore the selection of the specific apparatus will be apparent to the artisan.

5 The present invention extends to methods for preparing the microwavable popcorn compositions useful for preparing popcorn with a glaze coating. In such a method, the microwavable popcorn composition is prepared by first forming a glaze coating premixture comprising a hard candy base, an emulsifying agent, and water, together with any optional ingredients, to form a uniform mixture. The glaze coating premixture is then heated to form an
10 amorphous premixture, and the unpopped popcorn is provided. Preferably, the amorphous glaze coating premixture and unpopped popcorn are enclosed together in a microwaveable container. The final compositions are readily prepared using standard methods and apparatus generally known by those skilled in the confectionery arts. The apparatus useful in accordance with the present invention
15 comprises mixing apparatus well known in the confectionery arts, and therefore the selection of the specific apparatus will be apparent to the artisan.

In a specific embodiment, the present invention is directed to a method for making a microwavable popcorn composition useful for preparing
20 popcorn with a glaze coating which comprises the steps of:

(a) admixing the following ingredients:

(i) a hard candy base in an amount from about 40% to about 80%;

(ii) an emulsifying agent in an amount up to about 4%; and

(iii) water in an amount from about 0.1% to about 5%;

25 (b) heating the admixture from step (a) to form an amorphous glaze coating premixture; and

(c) providing unpopped popcorn in an amount from about 20% to about 60%;

wherein all percentages are by weight of the total mixture.

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In another embodiment, the present invention is further directed at a method for making a microwavable snack food composition useful for preparing a snack food with a glaze coating which comprises the steps of:

(a) admixing the following ingredients:

35 (i) a hard candy base in an amount from about 40% to about 80%;

(ii) an emulsifying agent in an amount up to about 4%; and

(iii) water in an amount from about 0.1% to about 5%;

(b) heating the admixture from step (a) to form an amorphous glaze coating premixture; and

(c) providing a snack food in an amount from about 20% to about 60%; wherein all percentages are by weight of the total mixture.

5 In this embodiment, the snack food may be selected from the group consisting of roasted nuts, fabricated starches, extruded snack foods, and breakfast cereals.

10 Throughout this application, various publications have been referenced. The disclosures in these publications are incorporated herein by reference in order to more fully describe the state of the art.

15 The present invention is further illustrated by the following examples which are not intended to limit the effective scope of the claims. All parts and percentages in the examples and throughout the specification and claims are by weight of the final composition unless otherwise specified.

Examples

20 This example illustrates the preparation of microwavable popcorn compositions useful for preparing popcorn with a glaze coating in accord with the present invention.

Materials and Methods

25 Sucrose fine granular, Corn Syrup 42DE Baume, and Emulsifiers (Stepan Kessco GDS 386F, a mono-and diglyceride; Lecithin Centromix WD).

Method A. Confection Glazed Popcorn Preparation

30 (amorphous glaze coating premixture placed as an intimate mixture with the unpopped corn kernels).

1. Corn Syrup 66g; Sugar, fine granular 66g; and Water 12g were added to a 1Q pot.
2. Cook on a stove to 140-145°C.
- 35 3. Add Emulsifier 386F 4g and 0.5g lecithin.
4. Add Corn Kernels 50g previously mixed with flavor emulsion. Mix well.
5. Transfer to a cooling table and form a slab about 5 x 3.5 x 5/16 inch dimension.
6. Insert the cooled slab to the middle compartment (from side view, there are two or three folds on each side, and the slab can be inserted in the middle or top with

both sides snugly fitted in the two creases to secure its position) of the popping bag. Fold and seal.

7. Place in a microwave oven (Kenmore or Sharp) until there is a 2 seconds interval in between popping sounds.

5 8. Hold two topside corners, avoid heat and steam, and shake well for 15 seconds to 1 minute before opening the bag.

9. Transfer the glazed corn to a flat surface such as aluminum foil to facilitate cooling if necessary.

10 Popping bag tests may be performed in any generic popping bags.

Method B. Confection Glazed Preparation:

(amorphous glaze coating premixture placed as a separate phase above the unpopped corn kernels).

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1. Corn Syrup 204g, Sugar, fine granular 200g, water 40g were added to a 1Q pot.

2. Cook on a stove to 140-145°C.

3. Add Lecithin Centromix WD, 1.5g.

4. Transfer 120g of material to a cooling table and form a slab about 5 x 3.5 x 5/16
20 inch dimension.

5. 50g corn kernels mixed with 25g fat were placed on the center bottom portion of the bag as one single layer.

6. Insert the cooled slab to the middle compartment of the popping bag. Fold and seal.

25 7. Place in a microwave oven (Kenmore or Sharp) until there is a 2 seconds interval in between popping sounds.

8. Hold two topside corners, avoid heat and steam, and shake well for 15 seconds to 1 minute before opening the bag.

30 9. Transfer the glazed corn to a flat surface such as aluminum foil to facilitate cooling if necessary.

35 When freshly popped, the glaze was hot and viscous on the popcorn surface. When cooled down, the glaze solidified and dried quickly. Popcorn sizes are normal (unpopped rate is low). There was minimum burning in the product. If heating time is prolonged, burning would occur. Some browning occurred due to the caramelization of the candy syrup. Some popped kernels were stuck to both bottom and top sides, but were easy to remove after syrup cooled down and solidified. Overall, glaze was homogenous throughout the entire bag. None or a

few kernels had brown color. Taste was crunchy, sweet, clean, and light. Color could be added to the syrup to fit flavor concept.

5 The present invention meets the requirement of an ideal one-step formulation, which has an even coating, no burning, and minimum sticking. The present formulation showed that by topping the corn kernels with a slab of glaze or directly trapping the kernels in the glaze base, the corns popped and were coated with the glaze providing an overall even coating and minimum burning. The uniqueness of this application is that corn kernels and glaze are closely in contact so
10 heating and coating are even. The heat and moisture generated by corn popping is also used to facilitate the melting of the glaze phase which become fluid enough to coat the corns. The popping, melting, and coating process is a continuous dynamic process. Overall water activity can be controlled to ensure a stable product shelf life.

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The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention and all such modifications are intended to be included within the scope of the following claims.

I claim:

1. A microwavable popcorn composition useful for preparing popcorn with a glaze coating which comprises in percentages by weight of the total mixture:

(a) unpopped popcorn in an amount from about 20% to about 60%; and

(b) a glaze coating premixture comprising:

(i) a hard candy base in an amount from about 40% to about 80%;

(ii) an emulsifying agent in an amount up to about 4%; and

(iii) water in an amount from about 0.1% to about 5%; wherein the glaze coating premixture is heated to form an amorphous premixture.

2. The microwavable popcorn composition according to claim 1, wherein the hard candy base is selected from the group consisting of corn syrup, sucrose, isomalt, polydextrose, sorbitol, maltose, xylitol, mannitol, and lactisole.

3. The microwavable popcorn composition according to claim 1, wherein the emulsifying agent is selected from the group consisting of lecithin, stearates, stearate esters, palmitates, palmitate esters, oleates, oleate esters, monoglycerides, diglycerides, and sucrose polyesters, polyglycerolesters, and mixtures thereof.

4. The microwavable popcorn composition according to claim 1, wherein the unpopped popcorn is present in an amount from about 25% to about 50%, by weight.

5. The microwavable popcorn composition according to claim 1, wherein the hard candy base is present in an amount from about 50% to about 75%.

6. The microwavable popcorn composition according to claim 1, wherein the emulsifying agent is present in an amount from about 0.1% to about 1%.

7. The microwavable popcorn composition according to claim 1, wherein the water is present in an amount from about 0.5% to about 4%.

8. The microwavable popcorn composition according to claim 1, wherein the hard candy base comprises corn syrup in an amount from about 30% to about 60% and sucrose in an amount from about 40% to about 70%.

9. A method for making a microwavable popcorn composition useful for preparing popcorn with a glaze coating which comprises the steps of:

(a) admixing the following ingredients:

- 5 (i) a hard candy base in an amount from about 40% to about 80%;
(ii) an emulsifying agent in an amount from about in an amount up to about 4%; and
(iii) water in an amount from about 0.1% to about 5%;

10 (b) heating the admixture from step (a) to form an amorphous glaze coating premixture; and

(c) providing unpopped popcorn in an amount from about 20% to about 60%;

wherein all percentages are by weight of the total mixture.

15 10. The method according to claim 9, wherein the hard candy base in step (a) is selected from the group consisting of corn syrup, sucrose, isomalt, polydextrose, sorbitol, maltose, xylitol, mannitol, and lactisole.

20 11. The method according to claim 9, wherein the emulsifying agent in step (a) is selected from the group consisting of lecithin, stearates, stearate esters, palmitates, palmitate esters, oleates, oleate esters, monoglycerides, diglycerides, and sucrose polyesters, polyglycerolesters, and mixtures thereof.

25 12. The method according to claim 9, wherein the hard candy base in step (a) is present in an amount from about 50% to about 75%.

13. The method according to claim 9, wherein the emulsifying agent in step (a) is present in an amount from about 0.1% to about 1%.

30 14. The method according to claim 9, wherein the water in step (a) is present in an amount from about 0.5% to about 4%.

35 15. The method according to claim 9, wherein the hard candy base in step (a) comprises corn syrup in an amount from about 30% to about 60% and sucrose in an amount from about 40% to about 70%.

16. The method according to claim 9, wherein the glaze coating premixture in step (b) is heated to a temperature from about 110°C. to about 170°C. to form the amorphous mixture.

17. The method according to claim 9, wherein the unpopped popcorn in step (c) is present in an amount from about 25% to about 50%, by weight.

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18. The method according to claim 9, wherein the amorphous glaze coating premixture from step (b) and unpopped popcorn in step (c) are enclosed together in a microwaveable container.

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19. A method for making a microwavable snack food composition useful for preparing a snack food with a glaze coating which comprises the steps of:

(a) admixing the following ingredients:

(i) a hard candy base in an amount from about 40% to about 80%;

(ii) an emulsifying agent in an amount up to about 4%; and

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(iii) water in an amount from about 0.1% to about 5%;

(b) heating the admixture from step (a) to form an amorphous glaze coating premixture; and

(c) providing a snack food in an amount from about 20% to about 60%; wherein all percentages are by weight of the total mixture.

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20. The method according to claim 19, wherein the snack food is selected from the group consisting of roasted nuts, fabricated starches, extruded snack foods, and breakfast cereals.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/09749

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A23L 1/025; A23L 1/36

US CL : 426/93, 309, 302, 445, 242

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 426/93, 309, 302, 445, 242

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,751,090 A (BELLESON et al) 14 June 1988, col. 2, lines 25-35.	1-19
Y	US 5,108,772 A (WILBUR) 28 April 1992, col. 1, lines 1-20.	20

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

05 JUNE 2000

Date of mailing of the international search report

03 JUL 2000

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